

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/788,471	02/21/2001	Koji Sasaki	1506.1004	6200
21171	7590	09/23/2004	EXAMINER RUTTEN, JAMES D	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			ART UNIT 2122	PAPER NUMBER

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/788,471	SASAKI, KOJI	
	Examiner	Art Unit	
	J. Derek Rutten	2122	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 July 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Acknowledgement is made of Applicant's amendment dated July 9, 2004, responding to the March 9, 2004 Office Action provided in the rejection of claims 1-12 wherein claims 1-12 have been amended, and new claims 13-17 have been added. Claims 1-17 remain pending in the application and have been fully considered by the examiner.

2. Applicant has primarily argued that the claims are not unpatentable over the "cited portion" of the admission of prior art section of the originally filed specification in view of Delucia because the cited portion does not disclose comments apart from a "first type", and also does not disclose unique comment keywords. Applicant further argues that Delucia does not teach updating source code while editing a specification. This argument is not persuasive, as will be addressed under the *Response to Arguments* section below.

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Response to Arguments

4. Applicant argues in the paragraph that starts on page 10 and ends at the top of page 11 of the amendment that the “cited portion” of Applicant’s specification only regards the “first type” of comment statements, and so does not meet limitations of the claims. However, it is noted that the language of the claim does not refer to any particular type of comment statement in clearly stated terms, but instead recites “disposing a comment statement...where a comment statement can be disposed.” It is interpreted that a comment statement can be disposed anywhere in code and is not limited to any particular position. The purpose of comment statements in programming language source code is to provide further details for a programmer and is intended to be disposed anywhere. As such, the cited portion on page 1 lines 11-13 discloses this in the description of C++ comment statements.

5. Applicant further argues on page 11 paragraphs 2 and 3 that the cited portion does not discuss a “unique comment keyword”. While this argument is persuasive, it is moot since the rejection of the claims does not rely upon the cited portion for this feature.

6. Paragraph 4 on page 11 further discusses the deficiencies of the cited portion in providing unique comment keywords and in providing merely the first type of comments. These arguments have been addressed above.

7. Applicant argues in the last paragraph on page 11, extending to page 12, that the Delucia reference does not update the originating code section after the associated generated specification has been edited. While this argument is persuasive, it is moot since the rejection of the claims does not rely upon Delucia for this feature.

Drawings

8. The drawings are objected to because Figures 11- 13, and 18 contain grayscale images which would not reproduce well as described by 37 CFR 1.84(l) and 1.84(m). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

9. Claim 14 is objected to because of the following informalities: Claim 14 appears to be left over from an initial editing of the amendment and contains notational symbols and language. Appropriate correction is required.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 14-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

12. Claim 14 appears to be left over from an initial editing of the amendment and contains notational symbols and language. As such it is indefinite, but will be interpreted according to the notes as being similar to claim 5, but with the limitation "interior of an aggregate".

13. Claims 15-17 are rejected for being dependent upon a rejected base claim.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 1, 2, 4-6, 8-10, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's own admission of prior art (pages 1-4 of the originally filed specification - hereinafter referred to as "APA") in view of U.S. Patent 4,819,233 to Delucia et al. (hereinafter referred to as "Delucia").

Art Unit: 2122

As per claim 1, APA discloses:

disposing a comment statement at positions in a source code where a comment statement can be disposed (page 1 lines 11-13: “Generally, a source code written in a programming language such as **C++** etc **includes comment statements** which are not converted into an object code even if compiled.” Note that the phrase “all positions in a source code” is interpreted to mean);

generating specification data by extracting the comment statements and joining the comment statements together (page 1 lines 18-20: “Therefore, a specification generating system for automatically generating a program specification by extracting the comment statements from the source code, has been utilized.”);

changing the comment statement in the specification data in accordance with an indication of changing the specification data, when the indication is given through the input device (page 1 lines 23-24: “a function used for an **operator to edit** the generated specification” page 2 lines 16-18: “To be specific, the operator **inputs** additional information and **changes** the description to correct the specification”.); *and*

replacing the comment statement in the source code with the comment statement in the specification data (page 1 lines 25-26: “a function of **updating** the comment statements in the source code **based on the edited specification**.”).

The APA does not expressly disclose disposing comments at all positions in source code, a computer readable medium connected to a computer with a display device, displaying specification data on the display device, or a unique comment keyword which relates the source to the specification.

However, it would be obvious to dispose comments at all positions in a source code. One of ordinary skill in the art at the time the invention was made would be motivated to describe every single line of source code in an effort to completely document a program in an attempt to clarify the purpose and intent of a line of code.

Also, in an analogous environment, Delucia teaches the use of a computer readable medium connected to a computer with a display device (FIG. 15; column 3 lines 28-33: "This system includes a general purpose digital **computer** 54, which in the exemplary system was a VAX computer. The processors as well as the target program are stored in **disc storage** 55. A **display terminal** 56 provides the **interactive** interface with the verifier for selection of the target unit and test case data"). Further, Delucia teaches the use of unique block identifiers which are inserted as comment statements and extracted as pseudocode for reference to the associated position in source code (column 2 lines 19-22: "In instrumenting the source code, non-executable comments with a **unique block identifier** are inserted at the beginning and end of each block of the target unit of code."; also column 2 lines 48-51: "The pseudocode contains only the control statements, with comments between identifying the blocks of code **using the same identifiers** as the instrumented code.").

As per claim 2, the above rejection of claim 1 is incorporated. Further, APA suggests *disposal of the comment statement at a position in an aggregate including processing procedures in the source code* if the position in the aggregate is recognized (page 3 lines 10-15).

In an analogous environment, Delucia teaches disposing comment statements with unique identifiers which relate pseudocode to implementation source code (FIG. 8; column 9 lines 24-31).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use APA's comment disposition with Delucia's identifiers as a means for relating pseudocode to source code. One of ordinary skill would have been motivated to add unique identifiers to comments to use as markers for relating a generated pseudocode or specification back to the original source code for the purpose of verification, implementation, or documentation.

As per claim 4, the above rejection of claim 1 is incorporated. Further, APA does not expressly disclose *wherein said specification generating program controls the computer to execute said disposing step so as to dispose the comment statement including the comment keyword at a position adjacent to a statement selected from a group consisting of a head statement of consecutive sequential statements, a non-consecutive sequential statement, a iteration statement, a selection statement and a branch statement in the source code.*

However, in an analogous environment, Delucia teaches disposing the comment statement including the comment keyword at a position adjacent to an iteration statement (FIG. 8 "BLOCK 03").

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use APA's specification generator with Delucia's comment

Art Unit: 2122

disposal method. One of ordinary skill in the art would have been motivated to uniquely identify control statements to aid in relating source code with a specification when refining a design.

As per claims 5,6, and 8, APA discloses a method (page 1 lines 21-26). All other limitations have been addressed in the above rejections of claims 1, 2, and 4, respectively.

As per claims 9, 10, and 12, APA discloses a system (page 1 lines 18-20). All other limitations have been addressed in the above rejections of claims 1, 2, and 4, respectively.

As per claim 13, APA does not expressly disclose a computer. However, official notice is taken that a computer can be used for manipulation of computer source code. Computers enable efficient processing of source code, and provide an environment for source code execution after it is compiled. All further limitations have been addressed in the above rejection of claim 1.

16. Claims 3, 7, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of APA and Diluvia as applied to claim 1 above, and further in view of the Abstract of Japanese Patent Number JP404055938A to Naota (hereinafter referred to as "Naota").

Art Unit: 2122

As per claim 3, the combination of APA and Delucia does not expressly disclose *inserting the comment keyword in a comment statement already included in the source code.*

However, in an analogous environment, Naota teaches adding keywords to extracted comment statements for specification generation (“comment addition part 7” in the *Constitution*).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the specification generator of the combination of APA and Delucia with Naota’s “comment addition part”. One of ordinary skill in the art would have been motivated to produce easy-to-understand specifications of previously existing commented source code.

As per claim 7, all limitations have been addressed in the above rejections of claims 3 and 5.

As per claim 11, all limitations have been addressed in the above rejections of claims 3 and 9.

17. Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of APA and Diluvia in view of U.S. Patent 5,748,975 to Van De Vanter.

Art Unit: 2122

As per claim 14, the above rejection of claim 5 is incorporated. APA does not expressly disclose: *a unique comment keyword within an interior of an aggregate or within the body of a function.*

However, in an analogous environment, Van De Vanter teaches disposition of comments using a comment keyword (column 28 lines 49-55: "...the attributes associated with the class "ClComment" and with each comment list element 160b-i include a **comment identifier** 182a, the anchor position 182b of a comment within the token list 158, lexical_position 182d, vertical_space 182e and a text pointer (text.ptr) 182f, which addresses one or more strings containing the text of the comment as entered by the user." Also column 29 lines 15-19: "First, by associating the comments with the token stream 158, which is not affected by program compilation, it is easy to keep comments **correctly positioned in the structured program** representation 156, and therefore the program display 118, from one compile to the next"). Van De Vanter's lexical positioning method using comment identifiers permits the disposition of comments within an interior of an aggregate, since the location of comments are determined based on information contained within the identifiers, and is not based on line numbers.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Van De Vanter's teaching of comment positioning with

Delucia's block id. One of ordinary skill would have been motivated to utilize information regarding code contained within a function that might not be visible to a specification generation system, particularly if the function was contained in an external library.

All further limitations have been addressed in the above rejection of claim 5.

As per claim 15, an aggregate inherently consists of a function or a procedure as disclosed (APA page 2 lines 1-3).

As per claim 16, an aggregate inherently consists of a main block of a class definition (APA page 2 lines 1-3).

As per claim 17, APA discloses source code written in C++ (page 2 lines 1-3).

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. U.S. Patent 5,761,408 to Kolawa et al. discloses storing information regarding source code in a database using unique keys (column 9 lines 27-38).
- b. U.S. Patent 5,768,592 to Chang discloses assigning unique identifiers to source code entities, and subsequently locating matching areas of source code using the identifier (column 1 lines 52-63).

Art Unit: 2122

- c. U.S. Patent 6,266,683 discloses using a comment ID field to assign a unique identifier to comments to associate comments with their associated fields (column 12 lines 15-40).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. Derek Rutten whose telephone number is (703) 605-5233. The examiner can normally be reached on M-F 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (703) 305-4552. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

After October 25, 2004, examiner can be reached at new telephone number (571) 272-3703, and the examiner's supervisor, Tuan Q. Dam can be reached on (571) 272-3694

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jdr



ANTONY NGUYEN-BA
PRIMARY EXAMINER